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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region III
841 Chestnut Building
Philadelphia, PA 19107

99863

SUBJECT: Delaware Sand and Gravel (RD/RA) Acceptable Levels for Contaminants of Concern in Ground Water

Date: November 4, 1991

From: Nancy Rios, Toxicologist NRios
Technical Support Section (3HW15)

To: Eric Newman, RPM
Superfund Remedial Branch- DE/MD Section (3HW25)

Pursuant to your recent request regarding acceptable levels in drinking water for several contaminants of concern at the Delaware Sand & Gravel Site, I have prepared a Table (see attachment) which denotes the acceptable chemical concentrations for those contaminants of concern at fixed levels of risk (i.e., a hazard quotient of one, or a lifetime cancer risk of 1×10^{-4} and 1×10^{-6}). Corresponding Maximum Contaminant Levels (MCLs), when available, are also denoted in the Table.

The acceptable levels in drinking water for each contaminant were obtained either from the "Drinking Water Regulations and Health Advisories," April, 1991, or from risk-based calculations using standard exposure parameters in the "Risk Assessment Guidance for Superfund" (RAGS), December 1989. As such, the chemical concentrations presented for those contaminants of concern denoted in Table 1 may be used as input values in the Multimedia Fate and Transport Model in order to determine the soil cleanup levels that will be protective of ground water and of human health and the environment in the study area.

If you have any questions, please call me at (215) 597-6682.

Attachment

cc: E. Johnson, Section Chief (3HW15), w/attachment
M. Snoparsky, Hydrogeologist (3HW15), w/attachment

TABLE 1:

Acceptable Levels of Contaminants of Concern in Ground Water at the Delaware Sand and Gravel Site*

Contaminant	Maximum Contaminant Level (ppb)	Hazard Quotient = 1 (ppb)	Risk-based Level (ppb) (10^{-4})	Risk-based Level (ppb) (10^{-6})
Acetone	-	3700	NA**	NA
Benzene	5	NA	49	0.49
Bis(2-chloroethyl) ether	-	NA	1.3	0.013
Chlorobenzene	100	39	NA	NA
Chloroform (THM)	100	370	21	0.21
o-Cresol (2-methyl phenol)	-	1800	NA	NA
p-Cresol (4-methyl phenol)	-	1800	NA	NA
Dichloroethane (1,2-)	5	NA	16	0.16
Dichloroethylene (trans 1,2-)	100	120	NA	NA
Dichloromethane (Methylene chloride)	5-P	370	540	5.4
Ethylbenzene	700	610	NA	NA
2-Hexanone (n-Butyl methyl ketone- MBK)	-	1800	NA	NA
4-methyl-2-pentanone (methyl isobutyl ketone -MIBK)	-	1800	NA	NA
Naphthalene	-	150	NA	NA
Phenol	-	22000	NA	NA

Table 1: Continued

Contaminant	Maximum Contaminant Level (ppb)	Hazard Quotient = 1 (ppb)	Risk-based Level (ppb) (10^{-4})	Risk-based Level (ppb) (10^{-6})
Polychlorinated byphenyls (PCBs)	0.5	NA	1.1	0.011
Styrene	100	1220	47	0.47
Tetrachloroethylene (PCE)	5	61	140	1.4
Toluene	1000	2700	NA	NA
Trichlorobenzene (1,2,4-)	9	15	NA	NA
Xylenes	10000	620	NA	NA

*The chemical concentrations presented in the Table correspond to fixed levels of risk (i.e., a hazard quotient of 1, or a lifetime cancer risk of 1 x 10^{-4} and 1 x 10^{-6}). These risk-based levels were obtained using standard exposure parameters found in the Risk Assessment Guidance for Superfund (RAGS), December, 1989. The toxicity constants were combined with the "standard" exposure scenarios. For drinking water, it is assumed that 2 liters/day of water is ingested by a 70 kilogram adult 350 days/year for an exposure duration of 30 years averaged over a lifetime (70 years). For non-carcinogens, the averaging time equals the exposure duration.

Federal promulgated criteria such as Maximum Contaminant Levels (MCLs) were obtained from the Drinking Water Regulations and Health Advisories, April, 1991. MCLs are maximum permissible level of a contaminant in water which is delivered to any user of a public water system. Unless otherwise indicated in the Table, all MCLs that were quoted in the Table are final. An MCL which is proceeded by a "P" is a proposed MCL, not a final MCL.

**NA-Not applicable